



# **Development Regulations and Guidelines**

Deerat Aloyoun Residential Villa Type D11

November 2020



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## BOOKLET 2 - Issue and Revision Record

Revision	Date	Description
R1	07/04/2017	Modified following HAJ Comments
R2	15/05/2017	Issue for Client Review
R3	08/08/2017	Modified following MoH Comments
R4	26/06/2018	Final
R5	17/11/2020	DRG has been updated and Future Exp. Layouts Attached

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### Information class: Standard

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# Contents

<b>1</b>	<b>Plot Regulations &amp; Guidelines</b>	<b>2</b>	<b>3</b>	<b>Accessible Units (where applicable)</b>	<b>15</b>
1.1	Land Use Product Definition	2			
1.2	Summary of key development controls	2	<b>4</b>	<b>Plot Regulations</b>	<b>16</b>
1.3	Boundary Wall	2	4.1	Plot Regulations Table	16
1.4	Entrance Gates	3			
1.5	Architectural Facade Type	4	<b>5</b>	<b>Definitions</b>	<b>17</b>
1.5.1	Bahrain Style	4	5.1	Gross Floor Area Definition (GFA)	17
1.5.2	Mediterranean Style	5	5.2	Villa GFA	17
1.5.3	Modern Style	6	5.3	TIO	17
1.5.4	Spain Style	7	5.4	Floor Area Ratio (FAR)	17
1.6	Permitted Modifications	8	5.5	Occupant	17
1.7	Prohibited Modifications	11	5.6	Outdoor Unit (ODU)	17
			5.7	CFC	17
<b>2</b>	<b>Structure &amp; MEP</b>	<b>13</b>	5.8	HCFC	17
2.1	Structure	13	5.9	HFC	17
2.2	Mechanical Services	13			
2.2.1	Cooling	13	<b>Appendices</b>		<b>2</b>
2.2.2	Exhaust fans	13	<b>A.</b>	<b>Fry Kitchen Raft</b>	<b>3</b>
2.3	Electrical services	14	<b>B.</b>	<b>Privacy Screen Option -1 Fabric Screen</b>	<b>5</b>
2.4	Extra Low Voltage System	14	<b>C.</b>	<b>Privacy Screen Option -2 Aluminium Louvre</b>	<b>6</b>
2.5	Public Health Services	14	<b>D.</b>	<b>Future Expansion Layouts at Roof</b>	<b>7</b>
2.5.1	Water Supply System	14			
2.5.2	Sanitary Drainage System	14			
2.5.3	Storm Water System	14			
2.6	Gas Services	14			

# 1 Plot Regulations & Guidelines

## 1.1 Land Use Product Definition

This product covers only a single plot size within the Deerat Aloyoun development which is a carefully crafted housing community within the Diyar Al Muharraq (DAM) Master Plan. The D11 type villa forms part of a neighbourhood theming within this development. This typology is defined as an attached villa. There are limited opportunities for development i.e. building extensions and the property must be occupied for residential purposes and by a single family only. The following schematic drawings represent the villa as purchased by the Occupant. Detailed architectural and engineering drawings are available from the TIO upon request. As per the “Property Sale Contract” or “Lease to Own Agreement”, and in order to maintain the high standards of the neighbourhood for the benefit of the Occupant, the following regulations must be adhered to by the Occupant:

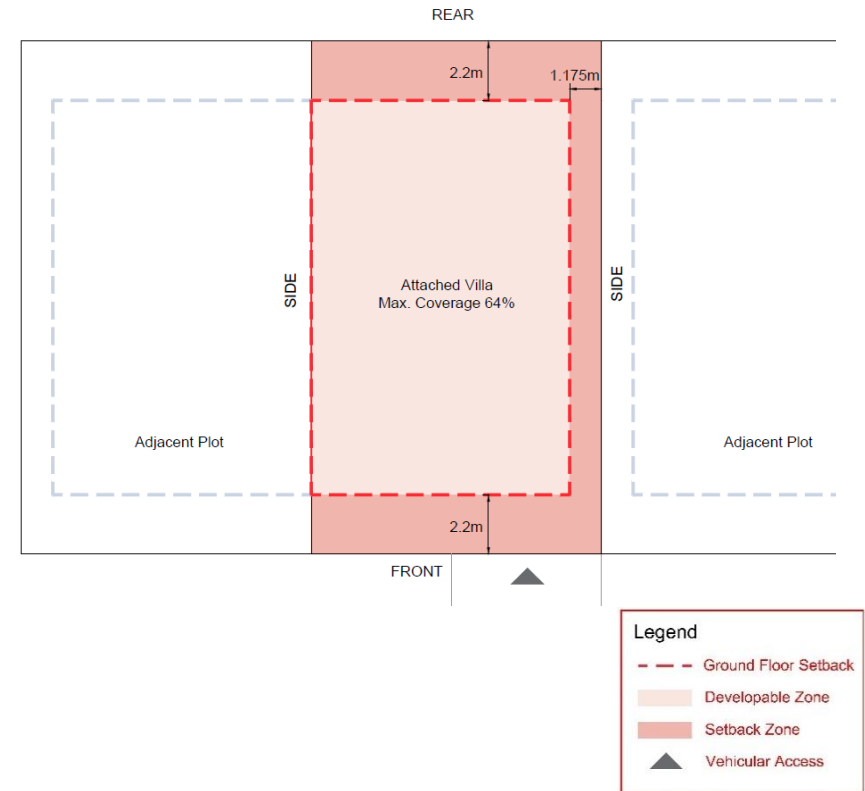
- No modifications to the villa are permitted except those described in this document. See Sub-Section 1.6 of this document.
- Approvals need to be obtained prior to undertaking any/all permanent or temporary modifications, please refer to the process described in Booklet 1, provided separately.

## 1.2 Summary of key development controls

- **Current Ground Level Setbacks**
  - Front = 2.2m
  - Side = 1.175m
  - Rear = 2.2m
- **Car Parking:** 2 spaces on plot<sup>1</sup>
- **Garden area:** Must remain permeable
- **As-built Gross Floor Area (GFA):** 223.8 sq. m.
- **Maximum GFA after allowed expansion:** 271.5 sq.m.
- **Maximum Height:** 14m

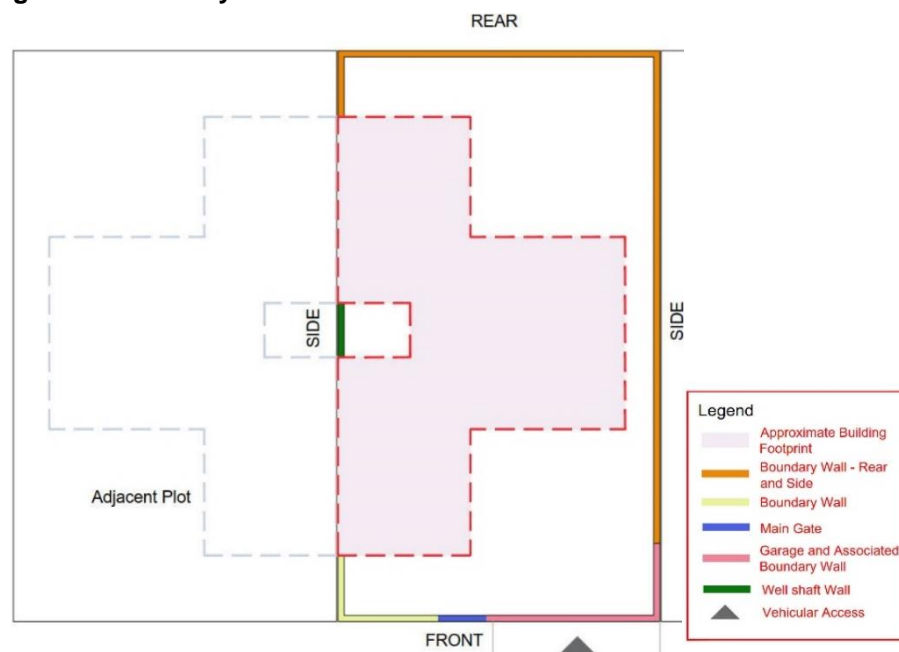
<sup>1</sup> 2 Parking spaces to be maintained to ensure sufficient parking areas throughout the Development

Figure 1: Plot Regulations Layout



## 1.3 Boundary Wall

Figure 2 below shows the extent of the boundary wall for this villa. Height restrictions are placed on the height of the boundary walls, and are detailed in Table 1 below;

**Figure 2: Boundary Plan****Table 1: Maximum Boundary Height**

	Bahrain	Mediterranean	Modern	Spain
Boundary Wall – rear and side	3.8m	3.8m	3.8m	3.8m
Boundary Wall – front	1.8m	1.8m	1.8m	1.8m
Well Shaft Wall	2.75m	2.75m	2.75m	2.75m
Main Gate	3.57m	3.27m	3.67m	3.37m
Garage and associated Boundary wall	3.47m	3.57m	3.37m	3.37m

*Note: Further boundary wall modifications are described in Section 1.6: Permitted Modification*

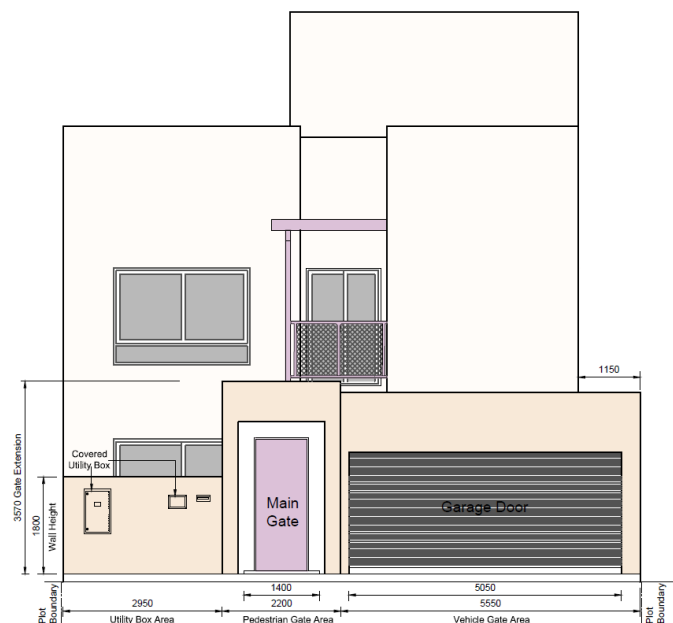
A Minimum height for boundary walls shall be 0.2m; However, this only applies to 2 adjacent boundary walls. No gable/exposed walls shall be permitted below 3.8m.

The front boundary wall forms the street facing facade and is meant to add to the public realm. It is designed as a continuation of the building facade theme to add interest to the streetscape. Any exposed cable boxes for lighting or utilities will be concealed within a covered unit, integrated into the wall.

Boundary walls that are adjacent to other boundary walls, are located 25mm within the plot boundary to allow for a 50mm expansion joint between the boundary walls of two adjacent villas.

### 1.4 Entrance Gates

Vehicular and pedestrian gates are permitted on the front of the plot. This height varies for each facade type, creating a focal entrance point to the plot and adding variety to the street elevation.

**Figure 3: Front Elevation of generic D11 Villa**

## 1.5 Architectural Facade Type

### 1.5.1 Bahrain Style

Architectural forms in the Middle East have, to some extent, been limited by two overriding factors – climate and the availability of building materials. Due to Bahrain's long history, local architecture has had many influences, especially from India, in the use of woodwork and Portugal, which makes it somewhat different from other Gulf countries. The main entrance was often large, even monumental. The door was decorated with detailed carvings. Roofs were flat so that during the summer nights it was possible to go and sleep on the roof in the cool air under the sky. The traditional Bahrain open roof handrails are often seen as solid horizontal timber bars quite prominently visible on the building façade. The balcony handrails often have timber cross bars with less prominent horizontal members. In some

traditional houses the decorative screens play the role of the open terrace handrails. These are made of timber lattice broken into equal size panels.

#### 1.5.1.1 Facade Colour Scheme

- External wall and Boundary Walls: RAL 15200
- Window Frames: RAL 8014
- Window Glass Tint: Bronze
- Balcony Pergola: RAL 8014
- Balcony Railing: RAL 8014
- Roof Frame: RAL 8014
- Gate: RAL 8014, Iron

**Figure 4: 3D Perspective View of the Street Facing Façade - Bahrain**



**Figure 5: Front Elevation Bahrain**





### 1.5.2 Mediterranean Style

A combination of influences from Spain, Italy, Portugal and other countries around the Mediterranean region of the world can be found in the architectural style that today bears the same name. Mediterranean style homes blend form and function with materials and features that keep them cooler in warmer climates.

They feature low pitch roofs covered in tile or flat roofs with stucco or adobe exterior walls in white or light colours. Common exterior elements typically include numerous oversized windows, carved entry doors, multiple

balconies, high arches, columns, arcades and ornamental wrought iron work on gates and windows.

#### 1.5.2.1 Façade Colour Scheme

- External wall and Boundary Walls: RAL 9918
- Window Frames: RAL 9016
- Window Glass Tint: Blue
- Balcony Pergola: Blue
- Balcony Railing: Black, Iron
- Gate: Black Iron

**Figure 6: 3D Perspective View of the Street Facing Façade - Mediterranean**



**Figure 7: Front Elevation Mediterranean**



### 1.5.3 Modern Style

This style is defined as the building style of the present day. Also, referred to as contemporary style, it features clean, simple lines, flat, gabled or shed roofs and has an emphasis on function more than form. The use of natural light plays an important part in this style, for which reason large and expansive windows devoid of decorative trim are a common and easily recognised feature of modern homes.

Asymmetrical orthogonal forms with minimal decoration, open floor plans and corner windows are often seen in houses with this style. The style generally connects indoor and outdoor spaces while adding personal touches and warmth throughout the living space. Simple railings in glass or steel replace heavy or ornamental metal work in this style.

#### 1.5.3.1 Façade Colour Scheme

- External Wall: RAL 520 & RAL 9918
- Boundary Walls: RAL 9912
- Window Frames: RAL 8080
- Window Glass Tint: Grey
- Garage / Patio Pergola: RAL 9016 Blue
- Balcony Railing: Clear Glass, Tempered
- Gate: 8080, Iron

**Figure 8: 3D Perspective View of the Street Facing Façade - Modern**



**Figure 9: Front Elevation Modern**



### 1.5.4 Spain Style

The Spanish style revived the architectural traditions of the early Spanish colonies, themselves based on the fanciful Moorish and Mediterranean motifs that influenced residences in the old country. These homes are sometimes called Spanish Eclectic houses in honour of their diverse influences.

An identifiable characteristic of Spanish style homes is the clay tile pitch roof with red or reddish-brown tiles. Curves and arches are noteworthy features often found over windows, doors and porch entries. Textured stucco walls, dark wood and ornamental iron work are details frequently found in Spanish style homes. Wrought iron work is found on stair railings, balconies, gates, etc.

#### 1.5.4.1 Façade Colour Scheme

- External Wall: RAL 9918 & RAL 8181
- Boundary Walls: RAL 8181
- Window Frames: RAL 8014
- Window Glass Tint: Bronze
- Garage / Patio Pergola 8014
- Balcony Railing: Black, Iron
- Stone Cladding: brown/beige
- Roof Frame: 8014
- Gate: Black, Iron

Figure 10: 3D Perspective View of the Street Facing Façade - Spain



Figure 11: Front Elevation Spain





## 1.6 Permitted Modifications

At the time of designing the Deerat Aloyoun development, careful consideration was given to the changing needs of its present and future residents. Consequently, the villas were designed keeping in mind the provisions for future expansion. As part of the permitted expansion, each Occupant may add an external fry kitchen on the ground floor, and a driver / maid room and an ensuite bedroom on the roof level to a maximum GFA for the villa of 271.5 sq.m., subject to these being constructed in the envelopes identified in Figures 12 and 13. All the Permitted Modifications must be fully rendered and painted with the approved colours, as described in Section 1.5, for each specific Façade Type.

### A External Fry Kitchen

- Permitted in the rear setback only. The extent of the fry kitchen is from the rear wall of the main villa to the rear boundary wall. Occupant must not construct Fry Kitchen on to a neighbour's boundary wall if double boundary wall is not built. Existing boundary wall foundations must not form part of the foundations for any proposed External Fry Kitchen. Indicative details are shown in Appendix A. Permissible extent of the room must not exceed 8.4sq.m and is permitted within the envelope indicated on Figure 12.

### B Maid Room on Roof

Permitted on the roof level and on the rear side of the stair room only. Permissible extent of the room must not exceed 10.70sq.m and is permitted within the envelope indicated on Figure 13.

### C Ensuite Bedroom on Roof

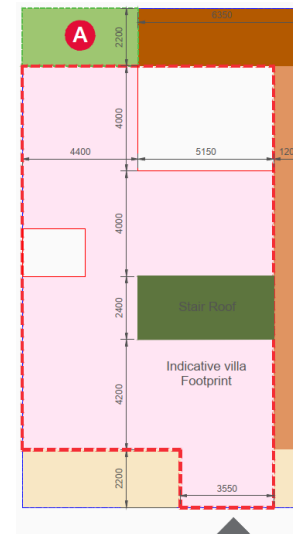
- Permissible extent of the room must not exceed 28.6sq.m and is permitted within the envelope indicated on Figure 13.

Other permitted modifications include the following:

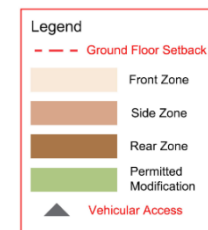
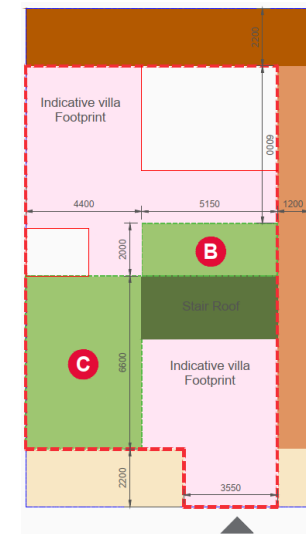
- The Occupant may undertake internal modifications such as moving a door, dividing a room, etc. subject to these modifications having no effect on the outward appearance of the villa.
- The Occupant may introduce a privacy screen to the rear and side boundary wall. Approved options such as a fabric screen or aluminum louvres are indicated in Appendix B and Appendix C. All privacy screens must be finished with the approved colours as noted in section 1.5

The approval of the Design for the Permitted Modifications will be at the discretion of the TIO.

**Figure 12: Permitted modifications on ground floor**



**Figure 13: Permitted modifications on roof level**



**Figure 14: Expansion Perspective**



**Figure 15: Expansion Perspective**



**Figure 16: Future Expansion**



**Figure 17: Future Expansion**



## 1.7 Prohibited Modifications

To ensure that the Permitted Modifications within the setbacks do not have a detrimental effect on the streetscape and the existing façade style of the building, these structures must adhere to the following general controls:

1. The maximum height (including the parapet) of a Fry Kitchen with the setback zone shall not exceed 3.8m.
2. The allocated GFA for the extensions will be included in the total allowed GFA for the villa (except for utilities)
3. The footprint of the Fry Kitchen on the ground floor must be counted within the permissible plot coverage.
4. Permitted modifications attached to the rear and side boundary wall are not allowed to have any openings overlooking adjoining plots.

The approval of design and location of all Permitted Modifications within a setback zone will be at the discretion of the TIO

**The following permanent or temporary modifications or changes to the building are not permitted.**

- Cladding, painting or decorating the building façade in a colour or with a material different from the original or with the intention to change the design theme of the home. This includes the window frames and glass.
- Any work that exceeds in the maximum footprint, GFA or building height, or that acts to reduce the building footprint.
- Majlis or store room outside the building footprint.
- Enclosing the garage for use as a room.
- Enclosing the balcony.
- Enclosing the well shaft, other than those described in Section 3 of this booklet.
- Building a shed, green-house, shelter, or cage on the roof.
- Installing additional equipment, satellite dishes or other items on the outside of the building or on the roof, unless this is screened, such that they are not visible from the road, to the approval of the TIO.

- Altering or increasing the height of the boundary wall beyond the restrictions indicated in Sub-Section 1.3, apart from the permitted modifications referred to in Section 1.6.
- No alterations whatsoever are permitted to the boundary wall columns and foundations.
- Building a shed, green-house, shelter, or a car port on the ground floor.
- Demolishing any part of the villa, with the exception of modifications required for the Permitted Modification detailed in Sub-Section 1.6
- Installing exposed piping, conduits or other services which are visible from outside the plot.
- Outdoor spaces such as terraces are not permitted above any development within the setback zone.
- Overhanging structures and building articulation are not permitted to encroach into the right-of-way and/or neighbouring plots.

Any modifications that affect the utility provisions to the plot, i.e. electrical, water, sewer, telecom, and storm water, will need to be designed, and the design approved by TIO before proceeding.

The electrical panel and wiring within the home is designed with a spare breaker and has a spare connected load in reserve for the planned expansion, as described further in Sub-Section 2.3.

Figure 18: Side Elevation

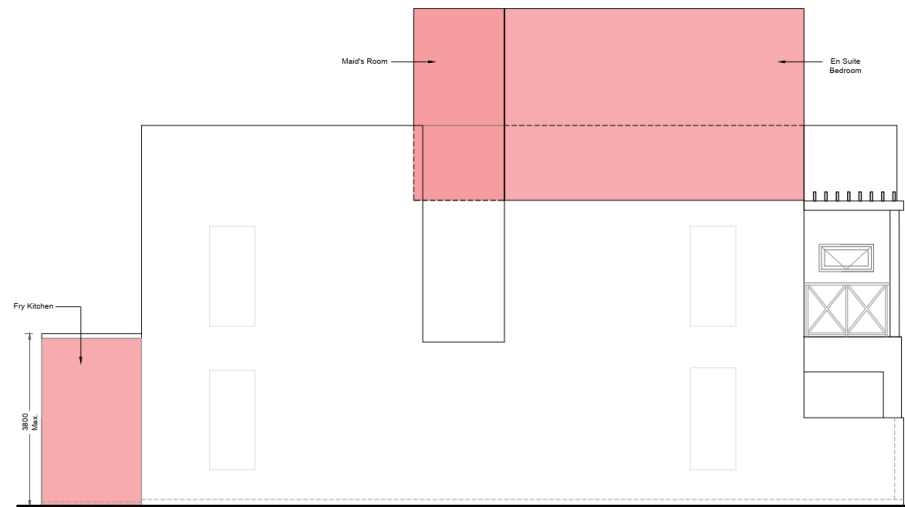
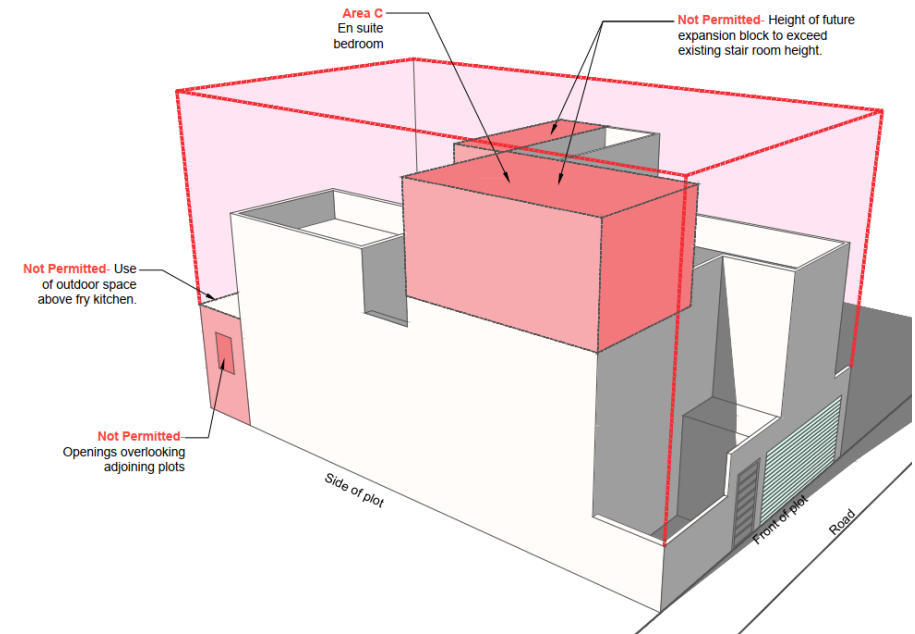


Figure 19: 3D Image of Permitted Modifications





## 2 Structure & MEP

### 2.1 Structure

The D11 type villa has been developed as part of social houses development for local authorities. The villa has been designed as a load bearing structure supported by a raft foundation with local thickenings as required.

The structural design has been developed to meet the design and construction requirements of the MoH output Specifications.

The structural elements include:

- Reinforced concrete cast in situ raft, columns, beams, lintels, slabs, walls
- Pre-cast concrete slab
- Blockwork including hollow, solid as well as concrete filled
- External and Internal load bearing walls
- External and Internal render
- Parapet walls
- Floor finish with concrete screed
- Precast / Cast In-situ stair case
- Balcony to suit the individual façade types

Additional floor loads have been considered onto the foundation design subjected to below restrictions:

- The Occupant shall not be permitted to change the columns and beams layout
- The Occupant shall not be permitted to alter the load bearing wall alignment and thicknesses

- Openings within the load bearing walls shall not be permitted, unless approved by TIO
- Openings into hollow core slab shall not be permitted
- Any changes which may affect the load bearing design shall not be permitted
- No alterations whatsoever are permitted to the boundary wall columns and foundations

Any alteration, in line with Section 1.6, on the structural elements must be confirmed by a registered structural engineer/designer and approved by Diyar Al Muharraq TIO.

### 2.2 Mechanical Services

#### 2.2.1 Cooling

Cooling within the villas is to be provided via DX split units. The purchase and installation of the outdoor and indoor units will be the responsibility of the Occupant, with capacities intended for each space provided within the Ventilation and Air-conditioning equipment schedules, which are available from Diyar Al Muharraq TIO. Indoor units shall be of the wall-mounted type and the outdoor units shall be installed in accordance with supplier recommendations. ODU's are to be selected based on an outdoor temperature of 46°C.

Ten 80mm diameter refrigerant pipe sleeves will be provided as part of the base build to facilitate the of refrigerant pipes between the indoor and outdoor units on different levels.

Refrigerants used shall be environmentally friendly HFCs with a comparatively low Global Warming Potential (GWP) and no Ozone Depletion Potential (ODP). The usage of CFCs and HCFCs is prohibited.

#### 2.2.2 Exhaust fans

Toilet foul air and kitchen fumes will be extracted via wall mounted axial fans. Fans are supplied.

## 2.3 Electrical services

Electrical Power supply provided to the villa is through three phase and neutral feeder distribution at 400/230V, 50Hz and the final electrical distribution to various electrical amenities through single phase distribution.

Two distribution boards have been provided; at ground floor and first floor within the villa. Each distribution board is feeding the lighting, air-conditioning, socket outlets and fixed electrical amenities within the respective floor.

The electrical system for the villa has a connected load of 50.7kW and demand load of 31.1kVA. A load allowance is made for future loads i.e. maid's room, fry kitchen and ensuite bedroom. To this end, incoming service facilities have been designed for a total demand load of 40kVA.

## 2.4 Extra Low Voltage System

Telephone, television and intercom system within the villa has been provided with containments, recessed junction boxes and accessory plates.

## 2.5 Public Health Services

### 2.5.1 Water Supply System

The water supply system for the Villa has been provided to supply plumbing fixtures, with their demand for cold and hot water at the required flow rate and pressure with minimum noise, contamination, and risk of leakage

- The incoming domestic cold water supply is provided from the development's infrastructure with a dedicated water meter.
- The water is stored in an above ground water storage tank and transfers to the roof tank for distribution around the villa for human consumption.
- The water velocity in cold and hot water piping network for mains and branches should not exceed velocities of 1.8 m/s and 1.2 m/s. respectively.
- Hose bib taps will be provided in garden. Water capped off connection is provided for the Maid's room at roof level, if constructed by the Occupant

- Hot water shall be supplied through electrical water heaters.

### 2.5.2 Sanitary Drainage System

The foul water system for the Villa has been provided as a single stack pipe drainage system for collecting soil and waste and shall be discharged into dedicated external foul systems.

- All sanitary fixtures to be vented, connecting to the vent stack discharging to atmosphere at the roof level.
- Drainage capped off connection is provided for Maid's room at roof level, for future development
- Adequate cleaning access for all drainage pipes is provided.

### 2.5.3 Storm Water System

- Storm water will be collected through suitably designed downpipes. These downpipes are integrated in to a pipe network which discharges the collected water into an onsite soakaway.
- Any additional rainwater downpipes should not be exposed.
- No additional impermeable areas to be constructed within the garden areas, other than the permitted modifications detailed in Sub-Section 1.6.

## 2.6 Gas Services

Electrically operated kitchen equipment is to be installed and purchased in lieu of gas operated apparatus, as such, no gas provisions are provided.

### 3 Accessible Units (where applicable)

General Provisions for the Accessible Units are detailed below.

Structural Provisions:

Description	Ground Floor	First Floor	Roof
Lift Pit	400mm deep pit filled with compacted washed sand with 100mm weak mix concrete screed topping. Depth of pit allows a variety of lift providers with the pit depth required for a wheelchair compatible lift		
Lift Shaft	Terminates at roof level at the necessary height to accommodate installation of typical mechanical plant on top of shaft		
Lift Shaft Structural Openings	Lift shaft with a built-in lintel at a typical height allowing for future provision of lift doors. Openings below are filled with blockwork stack bonded but tied in for ease of future removal. At ground floor level only, a door is provided to allow the space to be used as a temporary store.		
Door Openings	Selected bedroom and bathroom doors at ground and first floor have an extended structural opening width of 1000mm		
Entrance Ramp	1:12 slope up to the main entrance		
Front Gate	1400mm wide, for ease of wheelchair turning.		

MEP Provisions:

Description	Ground Floor	First Floor	Roof
Power		Provision of power for a lift has been included.	
Storeroom Small Electrics	A wall mounted light has been included within the lift shaft at ground floor level, which may need to be removed if a lift is installed.		

Architectural/ID Provisions:

Description	Ground Floor	First Floor	Roof
Toilet Accessories	Full accessories	Accessories by occupant	

## 4 Plot Regulations

### 4.1 Plot Regulations Table

Land Use Zone / Product Name	Permitted land use	Maximum height(m)	Maximum Plot FAR	Maximum Plot Coverage	Plot Setbacks (m)			Permitted Modifications	Building Appurtenances and Screening	Boundary Treatments	Signage Regulations	Special Requirements
					Front	Drive-way side	Rear					
Deerat Aloyoun Residential type D11	Single family residence	14	1.35	60%	2.2	1.175	2.2	Please refer to Sub-Section 1.6 of the DRG	All roof top systems such as water tanks, satellite dishes, air conditioning units and other mechanical or communications equipment shall be located or screened so that they are not visible from the street. Roof top systems should be setback from the parapet line and concealed behind an appropriately designed parapet wall or screen. Roof appurtenances will not exceed 4m above the top of the building and should be contained within the Plot boundary. Roof appurtenances will cover an area of no more than 30% of the total roof area.	Please refer to Sub-Section 1.3 -boundary treatments' in the DRG	Each villa will have one appropriately sized address sign to ensure a good level of way-finding within the asset	The maximum building height is measured from the established grade level to the top of the highest structure attached to the building. This includes all roof top features such as skylights, pergolas, domes, wind-towers, stair rooms, elevator rooms and MEP equipment.

## 5 Definitions

### 5.1 Gross Floor Area Definition (GFA)

The sum of the total area of buildings, existing and future, to be constructed on a Plot, measured from the exterior faces of the external walls or from the centre line of common walls of adjoining areas.

### 5.2 Villa GFA

The current GFA is 223.8 sq.m.

Once constructed the permitted modifications will add to this and the maximum overall villa GFA will be 271.5 sq.m.

### 5.3 TIO

Diyar Al Muharraq Technical Interface Office, refer to Booklet 1, provided separately.

### 5.4 Floor Area Ratio (FAR)

Floor area ratio (FAR) is the ratio of a building's GFA to the total plot area.

### 5.5 Occupant

Means buyer, tenant, or any other person as defined in the sales agreement.

### 5.6 Outdoor Unit (ODU)

The external part of a split unit that allows the refrigerant used to be cooled by passing air around it. The ODU houses elements such as the compressor and the condenser coil

### 5.7 CFC

Chlorofluorocarbons – a family of refrigerants that were popular until it was discovered that such substances were potent at causing ozone depletion. The Montreal Protocol set a timetable for the phase out of such materials and their usage are currently banned for new air-conditioning equipment entering the Kingdom of Bahrain.

### 5.8 HCFC

Hydrochlorofluorocarbons are compounds that are fairly similar structurally to CFC but additional hydrogen atoms. They are in the process of being phased out due to the effect that such substances have on the ozone layer

### 5.9 HFC

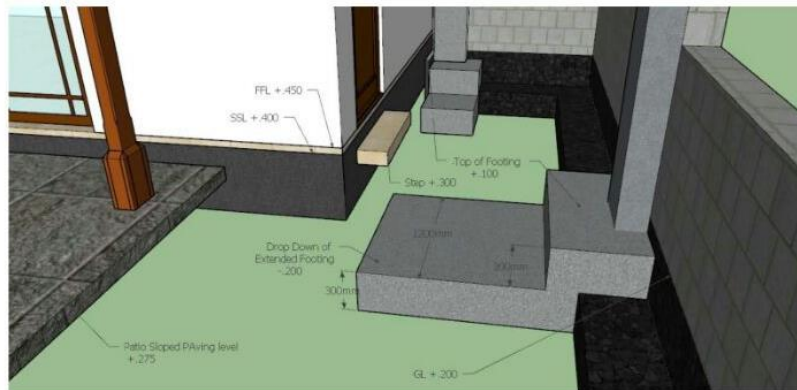
Hydrofluorocarbons are a class of refrigerants that are more environmentally friendly compared to CFCs and HCFCs with extremely low ozone depletion potential. HFCs were developed and designed as replacements to CFCs and HCFCs.

# Appendices

## A. Fry Kitchen Raft



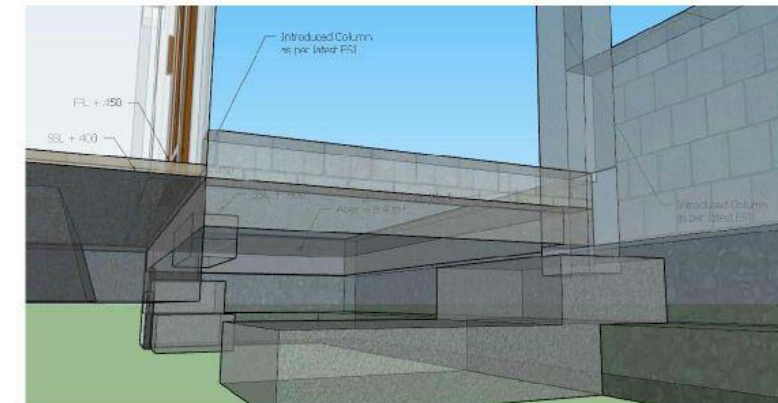
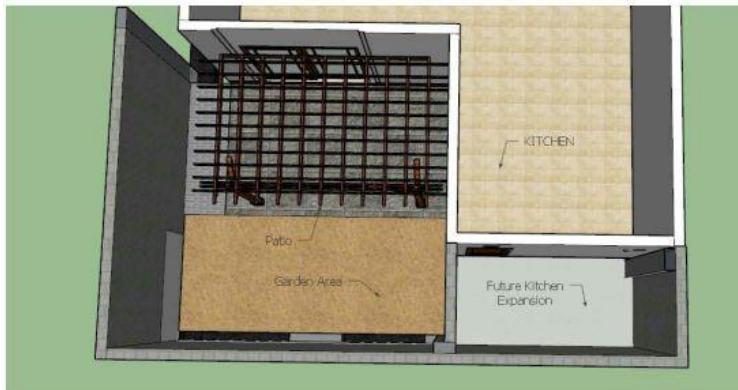
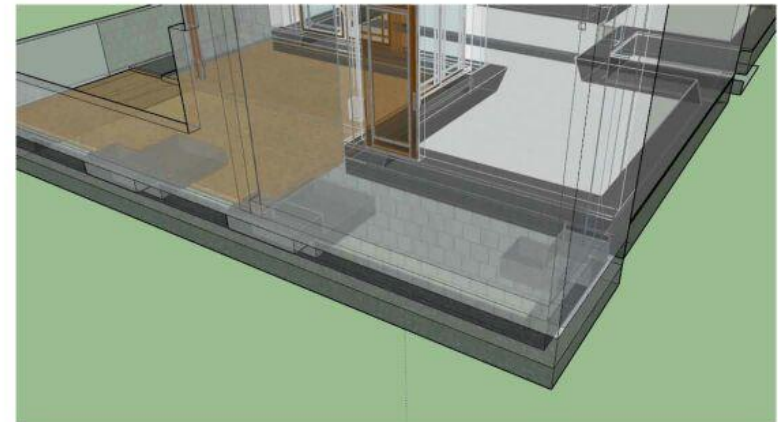
### D-11 FUTURE EXPANSION





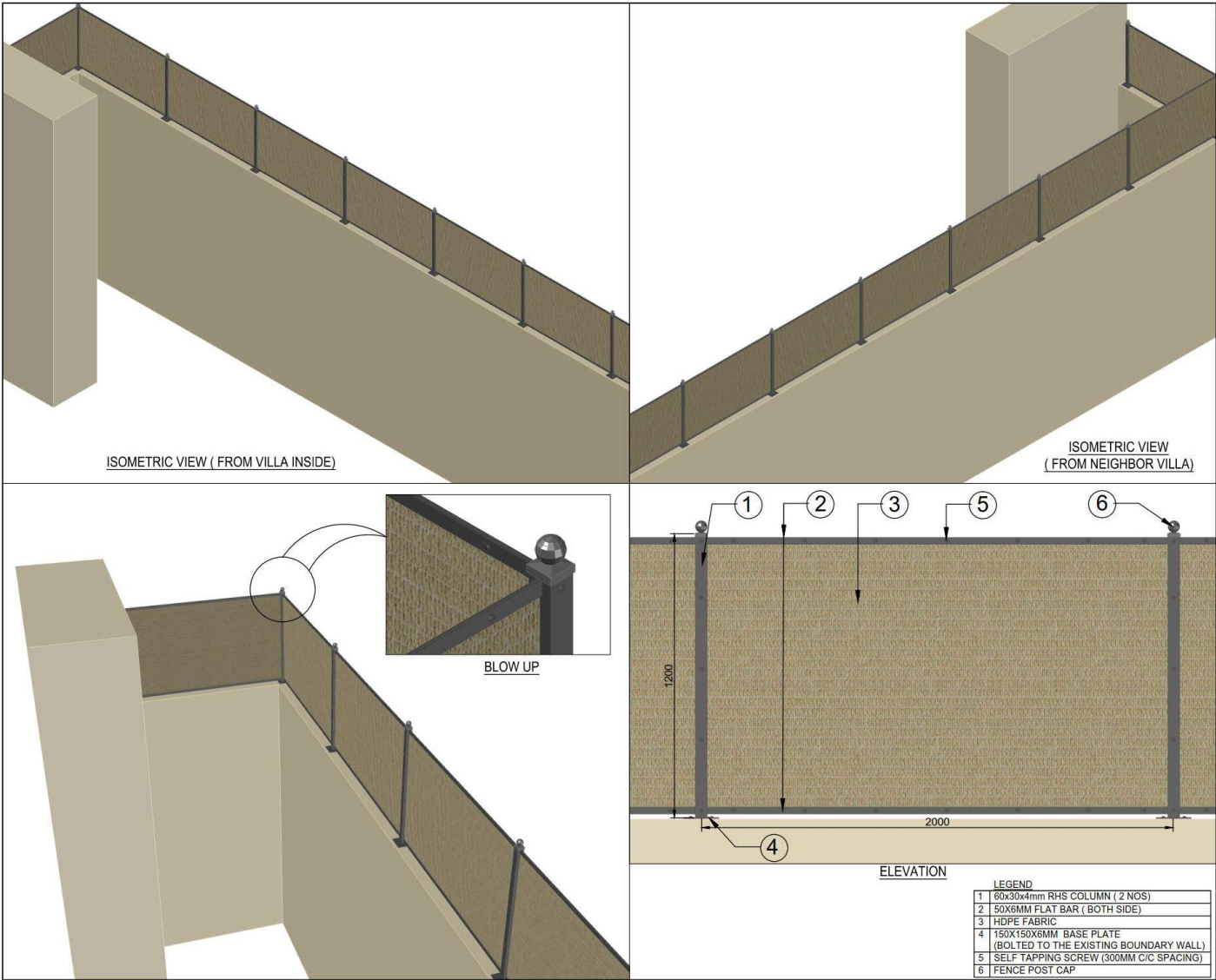


## D-11 FUTURE EXPANSION



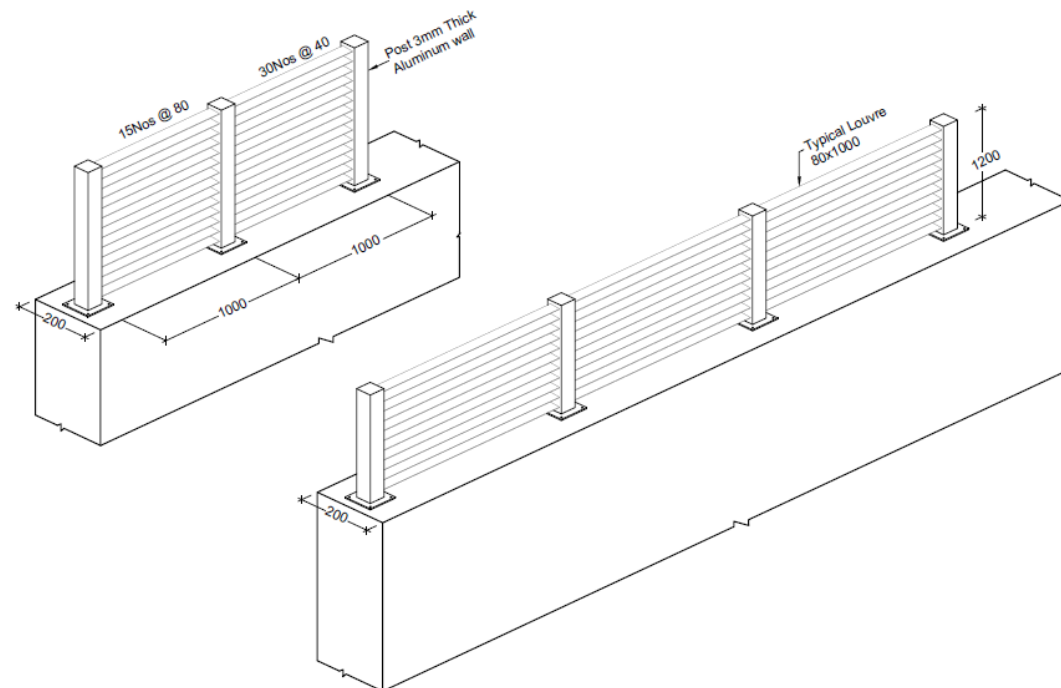


# B. Privacy Screen Option -1 Fabric Screen



## C. Privacy Screen Option -2 Aluminium Louvre

Powder coated aluminum louvre sections can be mechanically mounted to top of the parapet wall of the rear and side boundary wall. Louvre sections can be manufactured to increase/decrease visual transparency however final designs are subject to Engineers calculations & recommendations. Powder coated sections are available in an array of sizes and RAL colours to meet the requirements in section 1.5. This system is robust, light weight and requires little maintenance. The life expectancy of the aluminum panel system is in accordance with the 25 year life expectancy of the building.



## D. Future Expansion Layouts at Roof

### Architectural Layout:

- Drawing No. MMD-337385-A-DR-SH-XX-8115 & 8115A, Type D11 - All Facades Roof Floor Layout - Future Expansion Concept
- Drawing No. MMD-337385-A-DR-SH-XX-8116 & 8116A, Type D11 - All Facades Ground Floor - Future Expansion Concept

### Structural Layout:

- Drawing No. MMD-337385-S-DR-SH-XX-8394 & 8394A, Type D11 - ALL FACADES Roof Floor Framing Layout, COL, and Beam Schedule & Sections - Future Expansion Concept
- Drawing No. MMD-337385-S-DR-SH-XX-8395 & 8395A, Type D11 - ALL FACADES Roof Section Details - Future Expansion Concept

### MEP – Electrical Layout:

- Drawing No. MMD-337385-E-DR-SH-XX-2101 & 2101A, Type D11 Roof Plan Lighting Layout - Future Expansion Concept
- Drawing No. MMD-337385-E-DR-SH-XX-2102 & 2102A, Type D11 Roof Plan Small Power Layout - Future Expansion Concept

### MEP – HVAC Layout

- Drawing No. MMD-337385-M-DR-SH-XX-2303 & 2303A, Type D11 Roof Plan HVAC Layout - Future Expansion Concept

### MEP – PHE Layout:

- Drawing No. MMD-337385-P-DR-SH-XX-2202 & 2202A, Type D11 Roof Plan Domestic Water Layout - Future Expansion Concept
- Drawing No. MMD-337385-P-DR-SH-XX-2203 & 2203A, Type D11 Roof Plan Foul & Storm Water Layout - Future Expansion Concept